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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,935	02/09/2006	Johannes Baur	I2406148USIP20030565USN	4550
26161	7590	06/29/2007		
FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER CRANE, SARA W	
			ART UNIT 2811	PAPER NUMBER
			MAIL DATE 06/29/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/567,935		BAUR ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Sara W. Crane		2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to: See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____                                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/15/2006, 3/24/2006</u>                                      | 6) <input type="checkbox"/> Other: ____                           |

## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because of the following informalities:.

The numerals in the figures do not appear to correspond to the descriptions in the specification. For example, page 6, line 13, refers to "carrier element 2," having an epitaxial layer sequence 6 disposed on it. Layer 2 in the figures is the top layer, so it would not appear to be a "carrier element," and it does not have layers disposed on it. Also, "6" in figure 1C, for example, does not appear to be a layer sequence. Page 7, line 13, refers to "protuberances 5." figure 1C has a 5, but this numeral does not point to protuberances. Layer 9 is referenced in the specification as an "electrical contact layer," but 9 in the figures does not point to an electrical contact layer. These are examples of the lack of correspondence between the description of the figures and the figures themselves.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshitake et al., 2002/0195698, in view of Yamaguchi et al., 5,324,550.

(Yoshitake et al. corresponds to one of the references cited as an "X" reference on the international search report, EP 1 271 665.)

With respect to claim 1, Yoshitake et al. shows, in for example figure 9C, an LED epitaxial layer sequence on a carrier element 119, with active region 113 ([0068], [0069]). Layer 110 would be a reflective layer (corresponding to Applicant's reflective layer 3). The lower surface of 111 is facing the carrier element 119. The light extraction surface is the at the top, and layer 117 is a structured layer with mutually adjacent protuberances that taper away from the top surface. The lateral grid size is as claimed ([0010], last sentence of the paragraph). Layer 117 includes TiO<sub>2</sub> ([0069]) which is a glass material. Alternatively, Yamaguchi et al. teaches at column 5, lines 45-48, a titanium oxide containing material, referenced explicitly as "spin on glass." It would have been obvious to use the Yamaguchi material instead of the TiO<sub>2</sub> material of Yoshitake et al., in order to take advantage of the ease of deposition for spin on glass.

With respect to claim 2, the relative refractive indices as recited would have been obvious to obtain the antireflection property desired by Yoshitake et al. With respect to claims 3-4, figure 14C of Yoshitake et al. shows a periodic arrangement for the protuberances, convexly curved. With respect to claim 5, as noted above, the Yamaguchi et al. teaches "spin on glass." With respect to claim 6, the Yoshitake protuberance height is the same order of magnitude as the spacing, which is less than a wavelength ([0010]). With respect to claim 7, the layers are the same as in claim 1.

With respect to claims 8-9, Yamaguchi et al. teaches the "spin on glass." The limitations of claims 11-14 are discussed above.

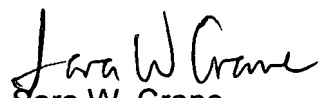
Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-9 and 11-14 above, and further in view of Banish et al, 7,145,721.

Grayscale lithography is taught at column 15, line 17, of Banish et al., and would have been an obvious technique to use for fabricating the Yoshitake et al. protuberances, because the structure of these protuberances is similar to the microlens structure of Banish et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Crane, whose telephone number is (571) 272-1652.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sara W. Crane  
Primary Examiner  
Art Unit 2811